

Appl. No. 09/706,937
Amdt. dated April 19, 2004
Reply to Office action of December 19, 2003

REMARKS

This is in response to the Office Action mailed December 19, 2003. In the Office Action, Claims 1-3, 5-9 and 12-14 were rejected as anticipated by U.S. Pat. No. 6,470,287 ("Smartt"), Claims 4 and 11 were rejected as obvious in view of the combination of Smartt and U.S. Pat. No. 6,327,535 ("Evans"), and Claim 10 was rejected as obvious in view of the combination of Smartt and U.S. Pat. No. 6,650,998 ("Rutledge").

With this response, Applicants have amended Claims 1 and 14. Applicants respectfully request reconsideration of Claims 1-14 in view of the following remarks. Applicants submit that all of the pending claims in the present application are allowable, as explained below.

Independent Claim 1

Applicants' independent Claim 1 relates to an index for data that represent geographic features. The index has a structure that includes three dimensions. A first dimension includes latitude boundary information, and a second dimension includes longitude boundary information. The first and second dimensions of the index are spatially searchable. A third dimension includes non-spatial property information. The third dimension of the index is searchable for a non-spatial property of the geographic features represented by the data.

Applicants' independent Claim 1 was rejected as being anticipated by Smartt. Applicants submit that Smartt does not anticipate Claim 1 because Smartt does not disclose all of the elements of this claim. Specifically, Smartt does not disclose the recited limitation of a third dimension that includes non-spatial property information, wherein the third dimension is searchable for a non-spatial property of the geographic features represented by the data.

Briefly, Smartt discloses a method and system for storing and retrieving spatial data objects from a spatial database. Smartt discloses separating a larger coordinate system into sub-regions ("tiles") wherein each spatial object, such as a road, is assigned to a particular tile. Smartt also discloses providing a series of overlaps between every tile ("shingles"). The shingles allow more data objects to be assigned to only one tile and not split between multiple tiles. (See: Smartt, column 28, line 50 – column 29, line 14). When querying for data

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organized in the tile and shingle structure of Smartt, a spatial search is performed using a minimum bounding rectangle (latitude and longitude rectangle) and shingle-key. (See: Smartt, column 24, lines 33-44).

The Office Action pointed to column 15, lines 32-45; column 16, lines 53-64; and column 24, lines 48-61 of Smartt as disclosing a third dimension that is searchable for a non-spatial property of the geographic features represented by the data. (See, Office Action: page 3). However, column 14, line 32-45 of Smartt merely describes the tile and shingle organization that allows the data to be spatially searched, not searching for a non-spatial property of the geographic features. Column 16, lines 53-64 of Smartt merely indicates that the tile and shingle organization can also be applied to three spatial dimensions of latitude, longitude and altitude and spatially searching the three dimensions; however, Smartt does not disclose or suggest searching for a non-spatial property of the geographic features. Column 24, lines 48-61 of Smartt merely refers to an example of applying the tile and shingle organization to real map data, not searching for a non-spatial property of the geographic features. Smartt merely discloses spatially searching a database structure. Thus, Smartt fails to disclose or suggest the recited limitation of a third dimension includes non-spatial property information, wherein the third dimension is searchable for a non-spatial property of the geographic features represented by the data.

Because Smartt fails to disclose or suggest every claim element, Smartt does not anticipate Applicants' independent Claim 1.

Independent Claim 2

Applicants' independent Claim 2 was rejected as being anticipated by Smartt. Applicants submit that Smartt does not anticipate amended Claim 2 because Smartt does not disclose all of the elements of this claim. Specifically, Smartt does not disclose that a non-spatial property of the data that represent the geographic features is searchable using the third dimension.

The Office Action pointed to column 27, lines 15-33; column 23, lines 45-65; and column 24, lines 1-45 of Smartt as disclosing the non-spatial property of the data that represent geographic features is searchable using the third dimension. (See, Office Action:

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page 4). However, column 14, line 32-45 of Smartt merely describes the cost for spatially retrieving data stored using the tile and shingle organization, not a non-spatial property of the data that is searchable. Column 23, lines 45-65 of Smartt merely provides a table illustrating the tile and shingle organization scheme for the road segments depicted in Figure 3 of Smartt, not a non-spatial property of the data that is searchable. Column 24, lines 1-24 of Smartt illustrates a spatial search to find all segments within the latitude and longitude bounding window and associated shingles, not a non-spatial property that is searchable. Smartt merely discloses spatially searching a database structure. Thus, Smartt fails to disclose or suggest the recited limitation of a non-spatial property of the data is searchable using the third dimension.

Because Smartt fails to disclose or suggest every claim element, Smartt does not anticipate Applicants' independent Claim 2.

Independent Claim 14

Applicants' independent Claim 14 relates to an index for data that has a structure with three dimensions. The first and second dimensions are spatially searchable using those dimensions. The third dimension includes granularity information of the indexed data, and a granularity of the indexed data is searchable using the third dimension.

Applicants' independent Claim 14 was rejected as being anticipated by Smartt. Applicants submit that Smartt does not anticipate Claim 14 because Smartt does not disclose all of the elements of this claim. Specifically, Smartt does not disclose the recited third dimension of the index that includes granularity information and that is searchable for a granularity of the indexed data.

The Office Action pointed to column 25, lines 6-58 of Smartt as disclosing that the granularity of the indexed data is searchable using the third dimension. (See, Office Action: page 4). However, column 25, lines 6-58 merely illustrates a comparison of the tile and shingle scheme to a hard bounded tile scheme at various levels or granularity. Smartt does not disclose or suggest a dimension of an index including granularity information and a granularity of the indexed data being searchable. Smartt just acknowledges that various levels of detail may exist for map data. Thus, Smartt fails to disclose or suggest the recited third

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dimension of the index that includes granularity information and that is searchable for a granularity of the indexed data.

Because Smartt fails to disclose or suggest every claim element, Smartt does not anticipate Applicants' independent Claim 14.

Dependent Claims 3-5, 8-9 and 11-13

Applicants' Claims 3-5, 8-9 and 11-13 are dependent claims that distinguish the cited references at least for the same reasons explained above in connection with their independent base Claims 1 and 2. In addition, these claims recite further features and limitations that are neither disclosed nor suggested by these references.


Petition for extension of time

Included with this response is a request for an extension of time to reply to the Office Action dated December 19, 2003. Included with this response is an authorization for payment of the fee associated with this request.

Conclusion

All the issues in the Office Action, dated December 19, 2003 have been addressed. Favorable consideration of the present application is requested. If any issues remain, the Examiner is invited to call the undersigned.

Respectfully submitted,



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